# BF421

## SMALL SIGNAL PNP TRANSISTOR

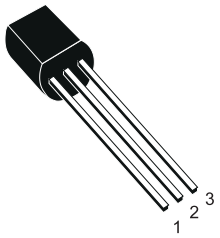
**PRELIMINARY DATA**

| Type | Marking |
|---|---|
| BF421 | BF421 |

- SILICON EPITAXIAL PLANAR PNP HIGH VOLTAGE TRANSISTOR
- TO-92 PACKAGE SUITABLE FOR THROUGH-HOLE PCB ASSEMBLY
- THE NPN COMPLEMENTARY TYPE IS BF420

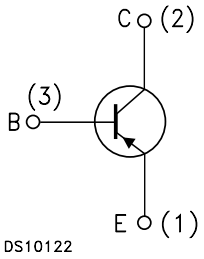
**APPLICATIONS**

- VIDEO AMPLIFIER CIRCUITS (RGB CATHODE CURRENT CONTROL)
- TELEPHONE WIRELINE INTERFACE (HOOK SWITCHES, DIALER CIRCUITS)




**TO-92**

**INTERNAL SCHEMATIC DIAGRAM**




**ABSOLUTE MAXIMUM RATINGS**

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage ($I_E$ = 0) | -300 | V |
| $V_{CEO}$ | Collector-Emitter Voltage ($I_B$ = 0) | -300 | V |
| $V_{EBO}$ | Emitter-Base Voltage ($I_C$ = 0) | -5 | V |
| $I_C$ | Collector Current | -300 | mA |
| $I_{CM}$ | Collector Peak Current | -500 | mA |
| $P_{tot}$ | Total Dissipation at $T_C$ = 25 $^oC$ | 830 | mW |
| $T_{stg}$ | Storage Temperature | -65 to 150 | $^oC$ |
| $T_j$ | Max. Operating Junction Temperature | 150 | $^oC$ |

## THERMAL DATA

| | | | |
|---|---|---|---|
| $R_{thj\text{-}amb}$ • | Thermal Resistance Junction-Ambient Max | 150 | $^oC/W$ |
| $R_{thj\text{-}Case}$ • | Thermal Resistance Junction-Case Max | 50 | $^oC/W$ |

## ELECTRICAL CHARACTERISTICS ($T_{case}$ = 25 $^oC$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_{CBO}$ | Collector Cut-off Current ($I_E$ = 0) | $V_{CB}$ = -200 V<br>$V_{CB}$ = -200 V $T_C$ = 150 $^oC$<br>$V_{CB}$ = -300 V | | | -10<br>-10<br>-100 | nA<br>µA<br>µA |
| $I_{EBO}$ | Emitter Cut-off Current ($I_C$ = 0) | $V_{EB}$ = -5 V | | | -50 | nA |
| $V_{(BR)CEO}$* | Collector-Emitter Breakdown Voltage ($I_B$ = 0) | $I_C$ = -10 mA | -300 | | | V |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_E$ = 0) | $I_C$ = -10 µA | -300 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_C$ = 0) | $I_E$ = -100 µA | -5 | | | V |
| $V_{CE(sat)}$* | Collector-Emitter Saturation Voltage | $I_C$ = -30 mA $I_B$ = -5 mA | | | -0.6 | V |
| $V_{BE(sat)}$* | Base-Emitter Saturation Voltage | $I_C$ = -30 mA $I_B$ = -5 mA | | | -1.2 | V |
| $h_{FE}$* | DC Current Gain | $I_C$ = -25 mA $V_{CE}$ = -20 V | 50 | | | |
| $f_T$ | Transition Frequency | $I_C$ = -10 mA $V_{CE}$ = -10 V f =100MHz | 60 | | | MHz |
| $C_{RE}$ | Reverse Capacitance | $I_C$ = 0 $V_{CE}$ = -30 V f = 1MHz | | | 1.6 | pF |

* Pulsed: Pulse duration ≤ 300 µs, duty cycle ≤ 2 %

## TO-92 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 4.32 | | 4.95 | 0.170 | | 0.195 |
| b | 0.36 | | 0.51 | 0.014 | | 0.020 |
| D | 4.45 | | 4.95 | 0.175 | | 0.194 |
| E | 3.30 | | 3.94 | 0.130 | | 0.155 |
| e | 2.41 | | 2.67 | 0.095 | | 0.105 |
| e1 | 1.14 | | 1.40 | 0.045 | | 0.055 |
| L | 12.70 | | 15.49 | 0.500 | | 0.609 |
| R | 2.16 | | 2.41 | 0.085 | | 0.094 |
| S1 | 1.14 | | 1.52 | 0.045 | | 0.059 |
| W | 0.41 | | 0.56 | 0.016 | | 0.022 |
| V | 4 degree | | 6 degree | 4 degree | | 6 degree |